RUBBERIZED
ASPHALT
CONCRETE
TECHNOLOGY
CENTER

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COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

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October 26, 2004

Ms. Cheryl Peace, Chair
Special Waste Committee
California Integrated Waste Management Board
Cal-EPA Building
1001 "I" Street
Sacramento, CA 95812-4025

Dear Ms. Peace:

COUNTY OF LOS ANGELES
RUBBERIZED ASPHALT CONCRETE TECHNOLOGY CENTER
PROPOSAL FOR FIVE-YEAR PLAN

Enclosed for California Integrated Waste Management Board approval and incorporation into the Five-Year Plan for the Waste Tire Recycling Management Program are the County of Los Angeles, Southern California Rubberized Asphalt Concrete Technology Center proposed projects totaling $3,101,000 for fiscal year 2005-06, $2,743,000 for FY 2006-07, and $1,860,000 for FY 2007-08 as summarized in Table 1. Based on discussions with the Board staff and other stakeholders, we have revised our September 23, 2004, draft proposal and are proposing all 12 projects under program element, *Market Development and New Technology Activities for Waste and Used Tires,* as described further in Enclosure A.

Los Angeles County is faced with the challenge of managing and diverting millions of tires generated each year by residents and businesses in the County. These waste tires pose a significant health risk to the citizens of the County if it is inappropriately managed. The County is committed to reduce this health risk, effectively manage the reduction of tires that enter our landfills, facilitate the expansion of the market for used tires, and manage projects utilizing recycled tires. In addition, the County is committed to maintaining and enhancing our already vast technical expertise in the field. Because the Board and the County share identical commitments, a partnership is an ideal vehicle to meet our common goals.

The County of Los Angeles Department of Public Works has the unique qualifications that make us an ideal candidate for this partnership. Public Works is responsible for construction and maintenance of over 3000 miles of arterial streets and major highways in the County unincorporated areas and over 40 contract cities within the County, five

airports, 5000 miles of local public sewers, 2500 miles of storm drains and open channels. In addition, Public Works serve as building officials for the County unincorporated areas including 25 contract cities within the County. We develop scopes of work and administer contracts and grants for hundreds of projects per year ranging in complexity from street sweeping to multi-million dollar dam retrofits. As a County agency, we have developed very close working relationships with hundreds of cities and other counties within the Southern Region. From this unique position we can manage the administration of the Board's resources in a responsive, efficient, and cost effective manner while providing the Board with the means necessary to meet their waste reductions targets.

As a leader in the use of new materials and construction techniques, we can serve as a role model for local agencies in overcoming the many barriers associated with using new products.

Our Technical Review Committee brings together resources and expertise in collecting information, reviewing, recommending, and disseminating approvals of new products and changes to our design standards and other technical criteria throughout Public Works.

Given that the County contributes over $13 million each year from new tire fee sales to the Board's tire fund, we request the Board to approve funding our proposals in order to reduce the existing health risks, effectively manage the reduction of tires that enter our landfills, and stimulate the development of market for recycled waste tires in the County. Should you need additional information, please contact me at (626) 458-4911 or Ms. Babauta, Assistant Program Director, at (626) 458-4989.

Very truly yours,

REZA IZADI
Program Director
Southern California Rubberized Asphalt Concrete Technology Center

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Enc.

cc: California Integrated Waste Management Board and Board Staff (Rosario Marin, Linda Moulton-Patterson, Carl Washington, Michael Paparian, Rosalie Mule, Mark Leary, Jim Lee, Nate Gauff)

ENCLOSURE A
Market Development and New Technology Activities for Waste and Used Tires

SCOPE OF WORK

Civil Engineering Uses

Project 1: Engineered Compacted Fill Slope
Construct an engineered compacted fill slope utilizing shredded tires from recycled waste tires. The project will be specifically designed as a typical slope reconstruction project to mitigate slope failures. This activity will consist of (1) utilizing relatively lightweight shredded tires in the engineered fill, (2) preparing specifications regarding the design, manufacturing, and construction of slope, and (3) developing a training program to transfer the technology to local agencies.

Proposed Funding FY 05-06:	$250,000
Proposed Funding FY 06-07:	$125,000
Total:	$375,000

Project 2: Construction of Rubberized Concrete Curb, Gutter, and Sidewalk
Construct 1000 linear feet of curb, gutter, and sidewalk. The project will utilize 500 tires and is intended to promote the use of crumb rubber (derived from waste tires) in concrete for public works improvement projects. The activity will consist of (1) removing and reconstructing 1000 lineal feet of curb, gutter, and sidewalk, (2) evaluating the overall durability and serviceability of the concrete, (3) preparing specifications regarding the design, manufacturing, and construction concrete curb, gutter, and sidewalk, and (4) developing training program to transfer the technology to local agencies.

Proposed Funding FY 05-06:	$175,000
Proposed Funding FY 06-07:	$100,000
Total:	$275,000

Rubberized Asphalt Concrete

Project 3: Methodology of Recycle RAC
Recycle one RAC roadway constructed using the wet process to transfer the technology to local agencies. Determine the technical parameters, operational capabilities, and economic viability of recycling RAC including identifying any effects on air quality. The activity will consist of (1) selecting a road approximately one mile long, (2) designing the mix-designs utilizing recycled RAC and determining the optimal percentage of RAC to be added to a virgin mix, (3) developing field and plant inspection, (4) constructing the road, (5) monitoring the performance of recycled RAC by deflection testing, (6) preparing specifications regarding the design, manufacturing, and construction of RAC, and (7) developing a training program to transfer the technology to local agencies.

Proposed Funding FY 05-06:	$102,000
Proposed Funding FY 06-07:	$343,000
Proposed Funding FY 06-07:	$ 80,000
Total:	$525,000

Project 4: Service Life of Los Angeles County RAC Roads
Quantify the service life of the County of Los Angeles RAC roads and develop an empirical model of the performance of RAC roads constructed using all three processes (wet, dry, and terminal blend) to transfer the technology to local agencies to assist them in developing a RAC pavement management plan. The study on existing RAC pavement will consist of (1) field evaluation at 2 years, 5 years, and 10 years, (2) deflection testing with engineering analysis and calculations, (3) coring and subgrade testing (CBR testing), (4) development of an empirical performance model of each of the three processes that can be used in a pavement management application to forecast performance condition levels and determine future rehabilitation needs and cost, and (5) developing a training program to transfer the technology to local agencies.

Proposed Funding FY 05-06:	$ 90,000
Proposed Funding FY 06-07:	$120,000
Proposed Funding FY 07-08:	$ 60,000
Total:	$270,000

Project 5: Methodology of RAC Utility Cut Patching
Develop a standard methodology for constructing or repairing utility trench cuts on RAC that can be utilized by local agencies, utility companies, and industry. Determine the methods and effects of utility cut patch with conventional asphalt concrete on the RAC pavement's life span and rehabilitation costs of RAC. The activity consists of (1) selecting 43 trench cuts to be constructed, (2) developing empirical performance measures on major (freeways) and local (arterial) RAC roads with utility cuts patched with 0-2 years, 3-5 years, and 6-10 years, (3) performing condition surveys, deflection testing, coring, and subgrade testing; and (4) developing a training program to transfer the technology to local agencies.

Proposed Funding FY 05-06:	$125,000
Proposed Funding FY 06-07:	$150,000
Proposed Funding FY 07-08:	$100,000
Total:	$375,000

Project 6: RAC on Foxfield Airport Pavement
Evaluate the performance of RAC at Foxfield airport by constructing a new taxiway or tie-down area. The activity will consist of (1) designing a new structural section for a taxiway or tie-down area, (2) utilizing Federal Aviation Administration specification for

pavement aggregates, (3) monitoring the performance of the pavement under aircraft loading, (4) conducting field, laboratory, and deflection testing to evaluate the performance of RAC, (5) developing project specifications regarding the design, manufacturing, and construction of RAC, and (6) developing training program to transfer the technology to local agencies.

Proposed Funding FY 05-06:	$250,000
Proposed Funding FY 06-07:	$130,000
Proposed Funding FY 07-08:	$120,000
Total:	$500,000

Project 7: RAC Pilot Program for the City of Los Angeles
Construct one RAC roadway for the City of Los Angeles to demonstrate the benefits of RAC. The activity will consist of (1) conducting field and laboratory investigation, coring, and deflection testing to determine if the road is suitable for RAC, (2) determining the appropriate thickness of RAC and designing the structural sections, (3) selecting appropriate mix design (4) constructing RAC including administering quality assurance/control (inspection), (5) monitoring RAC performance, and (6) developing training program to transfer the technology to City staff.

Proposed Funding FY 05-06:	$400,000
Proposed Funding FY 06-07:	$175,000
Total:	$575,000

Project 8: Performance Evaluation of RAC Pavements in Extreme Climates
Determine how RAC pavements perform in an extreme mountain-snow region and the other in a desert heat region. The activity will consist of (1) selecting RAC roads located in regions with extreme climates, (2) field evaluation at 2 years, 5 years, and 10 years; (3) deflection testing with engineering analysis and calculations, (3) selecting appropriate mix design (4) coring and subgrade testing (CBR testing), (5) developing of an empirical performance model of each of the three processes that can be used in a pavement management application to forecast performance condition levels and determine future rehabilitation needs and cost, and (6) preparing a performance evaluation report to disseminate the information to local agencies.

Proposed Funding FY 05-06: $110,000

Project 9: Market, Design, and Construct Play Ground Cover, Track, and Other Recreational Surfaces to Local Government Agencies
Market, design, and construct playground cover, track, and other recreational surfaces to local governments throughout the state. The activity will consist of (1) promoting and providing statewide outreach, (2) developing and disseminating educational and

informational materials (i.e. brochures, flyers, and market materials), (3) providing consultation services and technology transfer to local governments, (4) developing and maintaining an Internet website to be incorporated with the Center's existing website, (5) managing and administering a grant program for the IWM Board, and (6) developing design plans for the school selected by the IWM Board, and secure concurrence with all stakeholders. This activity will be in partnership with the Center's activities under project 2.

Proposed Funding FY 05-06:	$ 800,000
Proposed Funding FY 06-07:	$1,000,000
Proposed Funding FY 07-08:	$1,000,000
Total:	$2,800,000

Project 10: Rubberized Slurry Bikepath and Walkway
Design and construct a new bikepath and walkway along the San Gabriel River Regional Bike Trail at Thienes Avenue and Arrow Highway in the City of South El Monte and Irwindale to promote the use of recycled tires in recreational surfaces along the 37 mile corridor of the San Gabriel River. The project will be a joint venture with the Cities of South El Monte and Irwindale, Public Works, and the stakeholders of the Los Angeles County San Gabriel River Master Plan. The activity will consist of (1) designing and constructing a new bike path and walkway utilizing crumb rubber and rubberized slurry derived from recycled waste tires and (2) developing training program to transfer the technology to local agencies.

Proposed Funding FY 05-06:	$210,000
Proposed Funding FY 06-07:	$100,000
Total:	$310,000

Project 11: Rubberized Landscape Mulch
Use rubberized landscape mulch in Powell Drive and Wells Court in Stevenson Ranch as a part of the 2005 Santa Clara River Earth Day to promote and expand the market of recycled waste tires in landscape applications to local agencies. The project will be a joint venture with Stevenson Ranch and the stakeholders of the Los Angeles County Santa Clara River Master Plan. The activity will consist of (1) utilizing landscape mulch derived from recycled waste tires, (2) monitoring the effectiveness of weed control and moisture retention, and (3) preparing a report to market the technology to local agencies.

Proposed Funding FY 05-06: $89,000

Project 12: Southern California Rubberized Asphalt Concrete Technology Center
Continue Center operations on a full-time basis with enhanced services of promoting RAC statewide by providing technology transfer to local governments through direct

consultation, conducting local and regional workshops, and providing information materials. The activity will consist of (1) promoting and providing statewide outreach (2) developing and disseminating educational and informational materials (i.e. brochures, flyers, and market materials), (3) providing consultation services and technology transfer to local governments, and (4) maintaining Internet website and toll-free phone number. The activity will fund the Southern Center only but will be in partnership with the Northern Center.

Proposed Funding FY 05-06:	$ 500,000
Proposed Funding FY 06-07:	$ 500,000
Proposed Funding FY 07-08:	$ 500,000
Total:	$1,500,000

TABLE 1
BUDGET FOR PROPOSED PROJECTS FOR FIVE-YEAR PLAN

Budget for Market Development and New Technology Activities for Waste and Used Tires					
Project No.	**Program Area**	**FY 2005/06**	**FY 2006/07**	**FY 2007/08**	**Total**
1	Engineered Compact Fill Slope	$250,000	$125,000		$375,000
2	Construction of Rubberized Concrete Curb, Gutter, and Sidewalk	$175,000	$100,000		$275,000
3	Methodology of Recycle RAC	$102,000	$343,000	$80,000	$525,000
4	Service Life of Los Angeles County RAC Roads	$90,000	$120,000	$60,000	$270,000
5	Methodology of RAC Utility Cut Patching	$125,000	$150,000	$100,000	$375,000
6	RAC on Foxfield Airport Pavement	$250,000	$130,000	$120,000	$500,000
7	RAC Pilot Program for the City of Los Angeles	$400,000	$165,000		$565,000
8	Performance Evaluation of RAC Pavements in Extreme Climate	$110,000			$110,000
9	Market, Design, and Construct Playground Covers, Track, and Other Recreational Surfaces	$800,000	$1,000,000	$1,000,000	$2,800,000
10	Rubberized Slurry Bikepath and Walkway	$210,000	$100,000		$310,000
11	Rubberized Landscape Mulch	$89,000			$89,000
12	SCRACTC	$500,000	$500,000	$500,000	$1,500,000
	Totals	**$3,101,000**	**$2,743,000**	**$1,860,000**	**$7,704,000**

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